

CLAIMS

1. A vehicle control apparatus, where a motor is driven with power of an engine to rotate a drive shaft linked to drive 5 wheels, said vehicle control apparatus comprising:

a power demand determination module that determines a power demand to be output to the drive shaft according to a vehicle driving state;

10 a control module that controls the engine and the motor with the determined power demand;

a skid detection module that detects a skid occurring on the drive wheels; and

15 a torque restriction module that, in response to detection of a skid by said skid detection module, restricts a torque level of the drive wheels for reduction of the skid,

wherein under restriction of the torque level of the drive wheels by said torque restriction module, said power demand determination module limits the power demand, which is determined according to the vehicle driving state.

20 2. A vehicle control apparatus in accordance with claim 1, wherein said power demand determination module limits the power demand, which is determined according to the vehicle driving state, with a fixed setting of the power restriction rate, regardless of a variation in torque restriction rate of 25 restricting the torque level of the drive wheels.

3. A vehicle control apparatus in accordance with claim

1, wherein said power demand determination module limits the power demand, which is determined according to the vehicle driving state, with the power restriction rate that is regulated corresponding to the torque restriction rate of
5 restricting the torque level of the drive wheels.

4. A vehicle control apparatus in accordance with claim 3, wherein said power demand determination module limits the power demand, which is determined according to the vehicle driving state, with the power restriction rate that is
10 regulated to approach to the torque restriction rate with elapse of time.

5. A vehicle control apparatus in accordance with any one of claims 1 through 4, wherein said torque restriction module restores the restricted torque level of the drive wheels
15 with moderate limitation of the torque level of the drive wheels after convergence of the skid detected by said skid detection module.

6. A vehicle control apparatus in accordance with any one of claims 1 through 5, said vehicle control apparatus
20 further comprising:

an accumulator that is capable of driving the motor simultaneously with or independently of the engine; and

25 an engine stop prohibition module that controls said accumulator to drive the motor and prohibits a stop of the engine under limitation of the power demand, which is determined according to the vehicle driving state, by said

power demand determination module.

7. A vehicle control apparatus in accordance with claim 6, wherein said accumulator is either of a battery and a capacitor.

5 8. A vehicle with a vehicle control apparatus in accordance with any one of claims 1 through 7 mounted thereon.

9. A vehicle control method for a vehicle, where a motor is driven with power of an engine to rotate a drive shaft linked to drive wheels, said vehicle control method comprising the
10 steps of:

(a) determining a power demand to be output to the drive shaft according to a vehicle driving state;

(b) controlling the engine and the motor with the determined power demand;

15 (c) detecting a skid occurring on the drive wheels; and

(d) restricting a torque level of the drive wheels for reduction of the skid, in response to detection of a skid in said step (c),

wherein under restriction of the torque level of the
20 drive wheels by said step (d), said step (b) limits the power demand, which is determined according to the vehicle driving state.